

## **DUAL SPIN VALVE SENSOR WITH A LONGITUDINAL BIAS STACK**

### **ABSTRACT OF THE DISCLOSURE**

A dual spin valve (SV) sensor is provided with a longitudinal bias stack sandwiched between a first SV stack and a  
5 second SV stack. The longitudinal bias stack comprises an antiferromagnetic (AFM) layer sandwiched between first and second ferromagnetic layers. The first and second SV stacks comprise antiparallel (AP)-pinned layers pinned by AFM layers made of an AFM material having a higher blocking temperature than the AFM  
10 material of the bias stack allowing the AP-pinned layers to be pinned in a transverse direction and the bias stack to be pinned in a longitudinal direction. The demagnetizing fields of the two AP-pinned layers cancel each other and the bias stack provides flux closures for the sense layers of the first and second SV  
15 stacks.